Arch Chemicals, Inc

MATERIAL SAFETY DATA

FOR ANY EMERGENCY, CALL 24 HOURS/7 DAYS:	1-800-654-6911
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300
FOR ALL MSDS QUESTIONS & REQUESTS, CALL MSDS CONTROL:	1-800-511-MSDS

PRODUCT NAME: HTH® OTO TEST KIT

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

REVISION DATE: 10-26-1999 SUPERCEDES None
MSDS NO: 01639-0003 - MSD000010

MANUFACTURER: **Arch Chemicals, Inc. 501 Merritt 7 PO Box 5204 Norwalk, CT 06856-5204**

SYNONYMS: None
CHEMICAL FAMILY: Aqueous solutions
FORMULA: Not Applicable/Mixtures
USE DESCRIPTION: Pool and spa test kit
OSHA HAZARD CLASSIFICATION: Corrosive, eye hazard, skin and respiratory tract irritant; possible human carcinogen

SECTION 2 COMPONENT DATA

PRODUCT COMPOSITION

CAS or CHEMICAL NAME: Hydrochloric acid
CAS NUMBER: 7647-01-0
PERCENTAGE RANGE: < 10%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS:

	OSHA(PEL)		ACGIH(TLV)	
	ppm	mg/cubic-meter	ppm	mg/cubic-meter
TWA:	None		None	
CEILING:	5	7	5	7.5
STEL:	None		None	

CAS or CHEMICAL NAME: Orthotolidine dihydrochloride
CAS NUMBER: 612-82-8
PERCENTAGE RANGE: < 1%
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Water
CAS NUMBER: 7732-18-5
PERCENTAGE RANGE: Remainder to 100%
HAZARDOUS PER 29 CFR 1910.1200: No
EXPOSURE STANDARDS: None established

SECTION 3 PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON

CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER. AVOID BREATHING MIST OR VAPOR.

STORAGE CONDITIONS:
STORE IN A COOL, DRY, WELL VENTILATED PLACE.
DO NOT STORE AT TEMPERATURES ABOVE: Ambient is satisfactory
DO NOT EXPOSE TO DIRECT LIGHT.

PRODUCT STABILITY AND COMPATIBILITY
INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: Active metals, alkalis, strong oxidizers, cyanides, sulfides

SECTION 4 PHYSICAL DATA

APPEARANCE: Clear, slightly yellow liquid
FREEZING POINT: No Data
BOILING POINT: Approximately 100 Deg.C (212 Deg.F)
DECOMPOSITION TEMPERATURE: No Data
SPECIFIC GRAVITY: 1-1.03
BULK DENSITY: 1-1.03 (g/cc)
pH @ 25 DEG.C: < 1
VAPOR PRESSURE @ 25 DEG.C: Approximately 17 mm Hg
SOLUBILITY IN WATER: Miscible
VOLATILES, PERCENT BY VOLUME: 98-99%
EVAPORATION RATE. Approximately 1 (Water=1)
VAPOR DENSITY: 0.6
MOLECULAR WEIGHT: Not Applicable/Mixture
ODOR: None
COEFFICIENT OF OIL/WATER DISTRIBUTION: Not Applicable

SECTION 5 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:
RESPIRATORY PROTECTION:
Respiratory protection not normally required.
VENTILATION:
Use with normal ventilation.
SKIN AND EYE PROTECTIVE EQUIPMENT:
Not normally required.

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):
RESPIRATOR TYPE: Not normally required
PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Not normally required

SECTION 6 FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:

EXPLOSIVE:	No
FLAMMABLE:	No
COMBUSTIBLE:	No
PYROPHORIC:	No
FLASH POINT:	None

AUTOIGNITION TEMPERATURE: Not Applicable
FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): LEL - Not Applicable UEL - Not Applicable

NFPA RATINGS:
Not Established
HMIS RATINGS:

Health:	3
Flammability:	0
Reactivity:	0

EXTINGUISHING MEDIA:
Not Applicable-Choose extinguishing media suitable for surrounding materials

FIRE FIGHTING TECHNIQUES AND COMMENTS:
Reagent container would be expected to rupture under fire conditions. The reagent would not be expected to burn. Use water for cooling, if possible. Reagent may generate explosive hydrogen gas on contact with reactive metals, such as aluminum. Toxic and irritating fumes may be generated. See Section 11 for protective equipment for fire fighting.

SECTION 7 REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
TEMPERATURES ABOVE: Reagent is stable at normal temperatures
MECHANICAL SHOCK OR IMPACT: No
ELECTRICAL (STATIC) DISCHARGE: No
HAZARDOUS POLYMERIZATION: Will not occur
INCOMPATIBLE MATERIALS: : Active metals, alkalies, strong oxidizers, cyanides, sulfides, water reactive materials
HAZARDOUS DECOMPOSITION PRODUCTS: Under fire conditions the water present will boil off. Then toxic fumes including oxides of nitrogen, and carbon, together with chlorine and hydrogen chloride may be given off. Contact with active metals will generate flammable hydrogen gas.
OTHER CONDITIONS TO AVOID: High temperatures

SUMMARY OF REACTIVITY:

EXPLOSIVE:	No
OXIDIZER:	No
PYROPHORIC:	No
ORGANIC PEROXIDE:	No
WATER REACTIVE:	No

SECTION 8 FIRST AID

EYES:
Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN:
Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician. If clothing comes in contact with the product, the clothing should be laundered before re-use.

INGESTION:
Immediately drink large quantities of water. Induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION:
If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough product to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

SECTION 9 TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Inhalation, ingestion, skin and eye contact

WARNING STATEMENTS AND WARNING PROPERTIES
DO NOT TAKE INTERNALLY. CAUSES SEVERE IRRITATION TO CORROSIVE EFFECT ON THE EYES. CAUSES MUCOUS MEMBRANE IRRITATION. CAUSES SKIN IRRITATION. CAUSES RESPIRATORY IRRITATION. POSSIBLE HUMAN CARCINOGEN.

HUMAN THRESHOLD RESPONSE DATA
ODOR THRESHOLD: No data for product
IRRITATION THRESHOLD: No data for product
IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: No IDLH has been established for this product; the IDLH concentration for hydrogen chloride is 100 ppm.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE
INHALATION
ACUTE:
If mist or aerosol is inhaled, would be expected to cause mild to moderate irritation to the throat, mucous membranes, and upper respiratory tract. Any irritation would be expected to be transient with no permanent damage expected.
CHRONIC:
No effects would be expected except for those listed under acute inhalation exposure.

SKIN
ACUTE:
Skin contact would be expected to cause irritation consisting of transient redness. This irritant effect would not result in permanent damage.
CHRONIC:
There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

EYE
Severe irritation and/or burns consisting of redness, swelling, and mucous discharge to the conjunctiva would be expected to occur following eye exposure. Contact may cause impairment of vision and corneal damage.
INGESTION
ACUTE:
Ingestion may cause moderate to severe irritation of the mucosal membranes of the GI tract and gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy or diarrhea.

CHRONIC:
There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None known or reported

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY
None known or reported

ANIMAL TOXICOLOGY
ACUTE TOXICITY:
Inhalation LC 50: No Data
Dermal LD 50: No Data
Oral LD 50: Believed to be 3-5 g/kg. (rabbit)

Irritation: Causes skin and respiratory irritation. Causes severe irritation or burns to the eyes.

ACUTE TARGET ORGAN TOXICITY:
This product is corrosive to the eyes and may also cause irritation to the skin. Inhalation of mist or aerosol may cause irritation to the mucous membranes and respiratory tract.

CHRONIC TARGET ORGAN TOXICITY:
There are no known or reported effects from repeated exposure to this product except for effects similar to those experienced from single exposure.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:
There are no known or reported effects on reproductive function or fetal development from exposure to this product.

CARCINOGENICITY:
IARC has classified hydrochloric acid as having inadequate evidence for carcinogenicity to humans and animals. IARC therefore considers hydrochloric acid to be not classifiable as to its carcinogenicity to humans.

Orthotolidine dihydrochloride has been evaluated for carcinogenicity by NTP. In drinking water studies, o-tolidine dihydrochloride gave clear evidence for carcinogenicity in both male and female rats and in male mice.

o-Tolidine, a structurally related compound, is classified by IARC as a 2B Carcinogen (possibly carcinogenic to humans), by NTP as a Group 2 Carcinogen (reasonably anticipated to be a carcinogen-sufficient evidence from studies in experimental animals), by ACGIH as an A2 Carcinogen (suspected human carcinogen), and by NIOSH as a carcinogen defined with no further categorization.

This product should therefore be treated as a possible human carcinogen, caution should be utilized while handling this product and exposures should be minimized.

MUTAGENICITY:
Hydrochloric acid has been tested and was shown to be non-mutagenic in a battery of mutagenicity and genotoxicity assays.

This product contains < 1% o-Toluidine dihydrochloride which has been shown to be mutagenic in a battery of mutagenicity and genotoxicity assays.

AQUATIC TOXICITY:
No data for product; individuals constituents are as follows:

Hydrochloric acid:
It is the resulting pH rather than the concentration of HCl that governs its lethality to aquatic life. Only when the pH value is depressed to 5.0 or lower will hydrochloric acid prove lethal to fish.

The 96 hr. LC50 at 20 degrees Celsius for bluegill sunfish occurs when HCl lowers the pH value to 3.6. The 96 hr. LC50 for mosquito fish (Gambusia affinis) in turbid water is a concentration of 282 mg/l of HCl.

100% mortality to trout occurred for a 24 hr. exposure at a

concentration of 10 mg/l.

The toxic threshold of HCl toward Daphnia magna has been reported to be 56 to 62 mg/l in soft water and Lake Erie water, respectively.

SECTION 10 TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:
LAND: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (HYDROCHLORIC ACID, ORTHOTOLIDINE) 8, UN3264, PG III

WATER: SAME AS LAND

AIR: SAME AS LAND

HAZARD LABEL/PLACARD: CORROSIVE
REPORTABLE QUANTITY: NOT APPLICABLE (Per 49 CFR 172.101, Appendix)
EMERGENCY GUIDE NO. 60
SPECIAL COMMENTS: This material is part of a test kit and ships in small quantities that may NOT be regulated under D.O.T. as LIMITED QUANTITIES.

SECTION 11 SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.
FOR SPILL AND LEAK ACCIDENTS
Neutralize with soda ash. Absorb with vermiculite or other inert material. Containerize for later disposal. Dispose of per guidelines under Section 12, WASTE DISPOSAL.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
In case of fire, use normal fire fighting equipment.
A hazardous characteristic of this product is: Possible human carcinogen

SECTION 12 WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D002.

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with local, state and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

SECTION 13 ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:
The components of this product are listed on the Toxic Substance Control Act inventory.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 -

PROPOSITION 65:
"WARNING: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm."

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)
Delayed (Chronic)
PHYSICAL:
None

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:
EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:
None Established

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
This mixture or tradename product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372.
CHEMICALS LISTED ARE: Orthotolidine dihydrochloride, hydrochloric acid

SECTION 14 ADDITIONAL INFORMATION

This product is manufactured by Taylor Technologies, Inc.

MSDS REVISION STATUS: Address and Phone numbers revised; Section 15 revised

SECTION 15 MAJOR REFERENCES

1. Griffith, J.F., et al., Dose-Response Studies with Chemical Irritation in the Albino Rabbit Eye as a Basis for Selecting Optimum Testing Conditions for Predicting Hazard to the Human Eye. Toxicology and Applied Pharmacology, Vol. 55, pp, 501-513, 1980.
2. Toxicological Testing of Selected Hazardous Materials for Transportation Purposes. NTIS PB Report, (PB-270-991), National Technical Information Service, Springfield, VA, April 1976.
3. Isquith, A., et al., Genotoxicity Studies on Selected Organosilicon Compounds: In Vitro Assays. Food and Chemical Toxicology, Vol. 26, No. 3, pp. 255-261, 1988.
4. NTP Technical Report on the Toxicology and Carcinogenesis Studies of 3,3'-Dimethylbenzidine Dihydrochloride in F344/N Rats (Drinking Water Studies). NTP Technical Report #390. National Toxicology Program, Research Triangle Park, NC, June 1991.
5. Schieferstein, G.J., et al., Carcinogenicity Study of 3,3'-Dimethylbenzidine Dihydrochloride in BALB/c Mice. Food and Chemical Toxicology, Vol. 27, No. 12, pp. 801-806, 1989.
6. Zeiger, Errol, et al., Salmonella Mutagenicity Tests: IV. Results From the Testing of 300 Chemicals. Environmental and Molecular Mutagenesis, Vol. II, Supplement 12, pp. 1-158, 1988.
7. Tennant, Raymond W., and John Ashby, Classification According to Chemical Structure, Mutagenicity to Salmonella and Level of Carcinogenicity of a Further 39 Chemicals Tested for Carcinogenicity by the U.S. National Toxicology Program. Mutation Research, Vol. 257, pp. 209-227, 1991.

Other References are available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910 1200 THE INFORMATION INTHIS MSDS SHOULD BE PROVIDEDTO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT MAKES NO WARRANTY THAT IT IS ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT

Arch Chemicals, Inc.
MSDS Control
501 Merritt 7
PO Box 5204
Norwalk, CT 06856-5204